

CM-CVC Assignment 1

Wednesday, 4 February 2026 10:28

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Task 1: Ideation & Innovation

Q1. Innovation – How Innovation Shapes Society and Self (Summary)

Innovation plays a crucial role in shaping society by improving how people live, work, and communicate. It can be defined as the introduction of new ideas, methods, or technologies designed to enhance everyday life. Innovation is present in almost every aspect of modern society, from communication technologies to digital services, demonstrating its ongoing impact on social and economic development

1.1 How Innovation Shapes the W...

Historically, innovation has driven major turning points in human development. Advances such as industrialisation, electricity, computing, and digital technologies have transformed how societies function. These developments have improved productivity, enabled global communication, and created entirely new industries. The current period, often described as the Fourth Industrial Revolution, involves technologies such as artificial intelligence, big data, the Internet of Things, and blockchain, which are increasingly integrating physical and digital environments

1.1 How Innovation Shapes the W...

Innovation is also linked to long-term economic cycles, such as Kondratieff waves, where major technological breakthroughs create periods of growth and societal change. These cycles suggest that innovation continuously reshapes industries and economies, with emerging areas such as healthcare technologies, sustainability, and advanced computing expected to drive future development

1.1 How Innovation Shapes the W...

Creativity is fundamental to innovation because it enables individuals to generate new ideas and solutions. Creativity is not limited to artistic fields; it is a skill that can be developed through problem-solving, experimentation, and collaboration. Personal interests, passions, and experiences often inspire innovative ideas, highlighting the importance of creativity in both professional and personal growth

1.1 How Innovation Shapes the W...

Overall, innovation shapes society by driving technological progress, improving quality of life, and creating new opportunities. It also supports individual development by encouraging creative thinking, adaptability, and continuous learning, which are essential skills in modern computing and technological disciplines

1.1 How Innovation Shapes the W...

Q.2:

Initial Project Ideas

Several potential project ideas were considered based on my computing studies and personal interests in technology, fitness, and community engagement:

1. AI-Assisted Gym Training Platform

A web-based system that recommends personalised workouts using user goals, gym equipment availability, and performance tracking data. The system would support fitness improvement while applying database and web development skills.

2. Secure Student Sports Clubs and Events Platform (Selected Idea)

A digital platform designed to support university sports clubs, fitness communities, and organised events such as running clubs, training sessions, and competitions. The system would focus on secure membership management, event coordination, and improved communication.

3. Charity Fitness Event Coordination Website

A platform supporting charity runs and fitness events by allowing organisers to manage participants, track fundraising, and promote community health initiatives.

After evaluating feasibility, relevance to my programme of study, and potential societal impact, the sports club platform was selected as it combines database systems, web development, security considerations, and community value.

Selected Project Idea

Project Title

Secure Digital Platform for University Sports Clubs and Community Fitness Events

Aim

To design a secure web-based platform that supports university sports clubs and community fitness events through improved communication, membership management, and event coordination.

Objectives

- Design a relational database structure to manage sports clubs, memberships, and events
- Develop a user-friendly web interface for students, organisers, and administrators
- Implement secure authentication and data protection measures
- Support scheduling and participation tracking for sporting events such as runs, training sessions, and competitions
- Evaluate how digital platforms can enhance participation in sport and community wellbeing

Brief Project Description

Sports clubs and fitness communities play an important role in promoting physical health, social interaction, and student wellbeing. However, many university sports groups still rely on fragmented communication channels such as social media, spreadsheets, or manual sign-up processes. This can lead to poor organisation, communication gaps, and data security concerns.

This project proposes the design of a secure digital platform specifically focused on sports clubs and community fitness events. The system would allow users to discover clubs, register for activities such as running groups or training sessions, and receive updates from organisers. Administrators would be able to manage memberships, schedule events, and monitor participation securely.

The project aims to demonstrate how digital technologies can improve organisation, security, and engagement within sports communities while applying practical computing skills in database design, web development, and secure system planning.

Q.3:

To support the development of the proposed secure digital platform for university sports clubs and community fitness events, several relevant courses and academic sources have been identified. These resources will help develop the technical, security, database, and project management knowledge required to achieve the project's aim and objectives.

1. LinkedIn Learning – Introduction to Web Design and Development

The LinkedIn Learning course *Introduction to Web Design and Development* will support the technical development of the platform by providing knowledge of web design principles, front-end development, and basic backend integration. These skills are essential for creating a usable digital platform that allows sports clubs to manage memberships, events, and communication effectively [1].

2. LinkedIn Learning – Cybersecurity Foundations

The LinkedIn Learning course *Cybersecurity Foundations* will support understanding of authentication, data protection, and secure coding practices. These security considerations are essential when developing digital platforms that handle user information, ensuring data privacy and system reliability [2].

3. Database Design and Web Application Development Literature

Database systems are fundamental to modern web applications because they enable structured storage, retrieval, and secure handling of user data. Relational database design principles support efficient management of memberships, event scheduling, and communication records, which are central to the proposed sports platform [3].

4. Research on Digital Transformation in Sport Organisations

Digital technologies are increasingly transforming sports organisations by improving communication, user engagement, and operational efficiency. Research indicates that digital platforms can enhance community participation while supporting modern management practices within sport and fitness organisations [4].

5. Agile Project Management Resources

Agile development approaches emphasise flexibility, collaboration, and iterative improvement. Studies show that Agile practices can improve software development productivity, communication, and project quality, making them suitable for student software projects such as this proposed platform [5].

Together, these courses and academic sources provide the technical, security, and organisational knowledge required to successfully plan and design the proposed secure digital platform for university sports clubs and community fitness events.

Task 2: Project Management

Q.1: .

Proposed Solution

The proposed project involves the design and development of a secure digital platform focused on supporting university sports clubs and community fitness events such as running groups, training sessions, and competitive activities. The platform aims to address common challenges faced by sports organisations, including fragmented communication, manual event coordination, and limited secure management of participant data.

The proposed solution will consist of a database-driven web application allowing users to discover sports clubs, register for events, and engage with fitness communities through a centralised interface. Administrators will be able to manage memberships, schedule activities, and communicate securely with participants. Digital platforms have increasingly improved organisational efficiency and user engagement in sport communities, demonstrating the value of technology in promoting physical activity and social participation [1]. Security considerations will be integrated into the design through secure authentication, data validation, and appropriate user access controls, reflecting best practices in modern web development [2].

Technologies and Resources

Several technologies and resources will support the successful completion of the project. Web development technologies such as HTML, CSS, and JavaScript will be used to create the user interface, ensuring accessibility across devices. A backend solution using PHP and MySQL will support data storage, authentication processes, and event management functionality. Relational database systems are widely used in web applications because they enable structured data storage, efficient retrieval, and reliable security controls [3].

Development tools such as Visual Studio Code, XAMPP, and GitHub will support coding, testing, and version control. Cybersecurity knowledge gained from professional training resources will guide secure implementation practices, including password hashing, input validation, and session management. Project management tools such as Gantt charts will also be used to organise development stages and ensure structured progress throughout the project lifecycle.

Project Timeline and Task Schedule

The project will follow a structured development timeline from February to May 2026. The initial ideation phase took place between 4 February and 11 February 2026, where potential project ideas were explored and evaluated. This was followed by the definition of the project aim and objectives from 11 February to 18 February 2026.

During the period 18 February to 25 February 2026, several key planning activities will occur simultaneously, including development of the project outline, identification of key research sources, project scope definition, creation of the task schedule, development of the Gantt chart, and initial risk analysis. These activities ensure that the project has a clear direction before technical development begins.

From 25 February to 4 March 2026, an appropriate development methodology will be selected alongside the initial design phase. This will involve planning database structures, user interface wireframes, and system architecture.

The prototype development and implementation phase will take place between 4 March and 25 March 2026. This stage will focus on developing core system functionality such as user registration, sports club management features, and event scheduling tools.

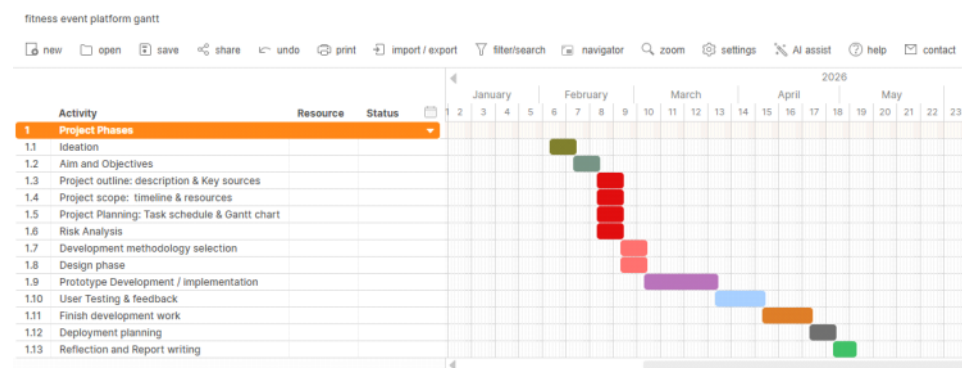
User testing and feedback will occur between 25 March and 8 April 2026, allowing evaluation of usability, functionality, and security aspects. The final development stage will run from 8 April to 22 April 2026 to refine the platform based on testing outcomes.

Deployment planning will follow from 22 April to 29 April 2026, focusing on documentation, system preparation, and potential hosting considerations. Finally, reflection and report writing will take place between 29 April and 5 May 2026, ensuring the project outcomes are critically evaluated and documented.

This structured timeline ensures manageable development stages while allowing flexibility for iterative improvements, which is consistent with recommended software project management practices [4].

Task	Start Date & End Date
Ideation	04/02/2026 – 11/02/2026
Aim and Objectives	11/02/2026-18/02/2026
Project outline: description & Key sources	18/02/2026-25/02/2026
Project scope: timeline & resoruces	18/02/2026-25/02/2026
Project Planning: Task schedule & Gantt chart	18/02/2026-25/02/2026
Risk Analysis	18/02/2026-25/02/2026
Development methodology selection	25/02/2026-04/03/2026
Design phase	25/02/2026-04/03/2026
Prototype Development / implementation	04/03/2026-25/03/2026
User Testing & feedback	25/03/2026-08/04/2026
Finish development work	08/04/2026-22/04/2026
Deployment planning	22/04/2026-29/04/2026
Reflection and Report writing	29/04/2026-05/05/2026

Q.2:



I used tomsplanner.com for my gantt chart creation. This helped me focus on sticking to the correct deadlines for each one of my tasks.

Q.3:

Risk no.	Risks	Impact	Contingencies
1	Hardware failure & loss of data	High	The “rule of three” backup strategy will be applied from the outset. All project work will be backed up in at least three locations, including local storage and secure cloud platforms such as OneDrive and Google Drive. This reduces the likelihood of permanent data loss.
2	Skill set limitations	High	Any gaps in technical knowledge will be addressed through independent learning, online courses (e.g., LinkedIn Learning), documentation, and tutorials. Continuous skill development throughout the project will help ensure successful completion.
3	Time	Medium	Time constraints are a common risk in student projects. A detailed Gantt

	management		chart will be created to schedule tasks and milestones. Progress will be monitored regularly and adjustments made where necessary to maintain focus and meet deadlines.
4	Scope creep / gold plating	Medium	Adding unnecessary features outside the project Aim and Objectives could delay completion. A prioritised requirements specification and structured project plan will be followed to maintain focus on essential features. Optional enhancements will only be considered if time permits.

Task 3: Project Development method & Design work**Q.1:**

A suitable development method for this project is the Agile methodology, specifically an iterative and incremental approach. Agile is widely used in modern software development because it promotes flexibility, continuous improvement, and responsiveness to change [6]. As this project involves developing a secure digital platform for university sports clubs and community fitness events, requirements may evolve during the design and testing stages. An Agile approach allows development to occur in manageable stages (sprints), enabling features such as user registration, club management, and event scheduling to be built and refined progressively.

Agile encourages regular evaluation and feedback, which is particularly beneficial during the user testing phase. Feedback from potential users can be incorporated into subsequent iterations, improving usability and functionality before final completion [7]. This reduces the risk of delivering a system that does not fully meet user needs.

Additionally, Agile supports better time management through defined milestones and short development cycles, aligning with the structured Gantt chart created in Task 2. By focusing on delivering core features first and refining them iteratively, the project remains manageable within academic time constraints.

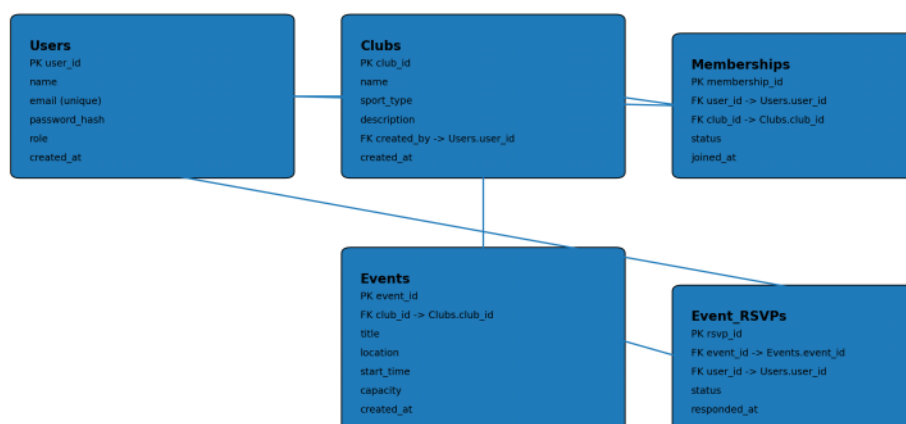
Overall, Agile provides a structured yet flexible framework suitable for completing this computing project effectively.

Q.2:

Req. No.	Priority	Requirement Description
R1	High	The system shall allow users to register and log in securely using encrypted passwords.
R2	High	The system shall support role-based access control (student, club admin, system admin).
R3	High	Users shall be able to browse and search university sports clubs.
R4	High	Each club shall have a profile page displaying sport type, description, and events.
R5	High	Users shall be able to request membership to sports clubs.
R6	High	Club administrators shall be able to approve or reject membership requests.
R7	High	Club administrators shall be able to create and manage sporting events (runs, training, competitions).
R8	High	Users shall be able to register (RSVP) for events and track participation.
R9	Medium	The system shall display upcoming sports events on a central events page.
R10	Medium	The system shall limit event registrations based on capacity.
R11	Medium	Administrators shall be able to post announcements to club members.
R12	Medium	The platform shall maintain an audit log of key actions for security and accountability.
R13	Medium	The system shall be responsive and usable on mobile and desktop devices.
R14	Medium	Personal data shall be handled securely following basic data protection principles.
R15	Low	Optional analytics may be included to show participation trends and engagement.

The requirements specification was developed to clearly define the functional and non-functional needs of the proposed sports clubs digital platform before implementation began. Each requirement was assigned a unique identifier (R1–R15) and prioritised (High, Medium, Low) to support structured development and reduce the risk of scope creep. High-priority requirements focus on core system functionality such as user authentication, club management, and event registration, ensuring the minimum viable product supports the project aim. Medium and low-priority requirements address usability, performance, and potential enhancements. This structured approach supports traceability between requirements, system design, and implementation while aligning with Agile development principles discussed previously [6]. Defining requirements early improves clarity, reduces ambiguity, and ensures that development remains focused on delivering essential features within the academic timeframe.

Simplified ERD - Sports Clubs & Community Fitness Platform



An Entity Relationship Diagram (ERD) was developed to design the underlying database structure of the secure sports club digital platform. The ERD defines the core entities required to support membership management, event coordination, and secure user authentication. Key entities include Users, Clubs, Memberships, Events, and Event Participation.

The Users entity stores account information such as user ID, name, email, password hash, and role (student, club administrator, system administrator). The Clubs entity records club details including club name, sport type, description, and approval status. A many-to-many relationship between users and clubs is managed through the Memberships table, allowing users to join multiple clubs and clubs to contain multiple members.

The Events entity stores event details such as title, location, date, capacity, and associated club. Participation in events is handled through an Event Participation table, which tracks attendance and RSVP status. Primary keys and foreign keys are used to enforce referential integrity and maintain consistent data relationships.

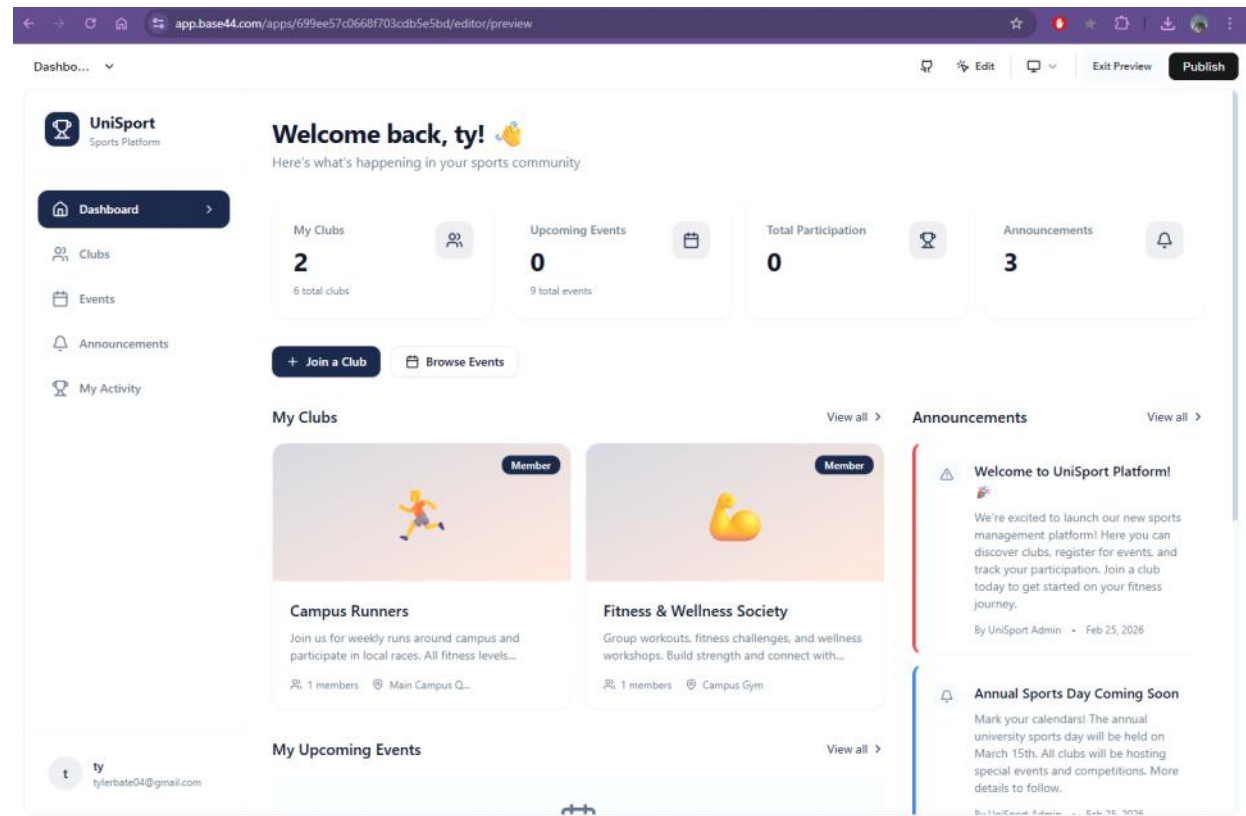
Designing the ERD ensures that the database follows relational design principles and supports scalability, security, and efficient querying. This structured approach reduces redundancy and aligns with best practices in database systems design [3].

Q.3: Use several screenshots with brief description to document some **initial practical implementation work for your project.**

As part of the initial implementation stage, a working prototype of the proposed sports clubs platform was developed using the Base44 application development tool. The prototype allowed key features of the system to be visualised and tested, including the user dashboard, club discovery section, event browsing, and announcement notifications. Creating this prototype helped to translate the earlier design work, such as the requirements specification and ERD, into a practical interface. It also allowed experimentation with layout, navigation, and information presentation before developing the full system.

Developing the prototype was particularly valuable for refining the overall vision of the final platform. By interacting with the interface and viewing the layout of pages such as the dashboard and club pages, it became easier to understand how users would navigate the system and engage with sports communities. A well-designed interface is important because usability and visual design strongly influence user engagement and retention within digital platforms [8]. Ensuring that the platform is visually clear, intuitive, and responsive can encourage students to continue using the system to discover clubs, participate in events, and stay connected with their sports community.

The prototype therefore serves as an early proof of concept that guides the development of the final implementation.



To support the development of the final platform, the necessary development tools have been installed and configured. The project will use XAMPP as the local server environment, which provides Apache, PHP, and MySQL services required to build and test the database-driven web application. XAMPP allows the system to run locally during development, enabling database tables, user authentication, and event management features to be tested before deployment. For writing and editing the source code, Notepad++ will be used as the primary code editor. Notepad++ provides useful features such as syntax highlighting, code formatting, and multi-language support, making it suitable for developing the HTML, CSS, JavaScript, and PHP files required for the platform. Together, these tools provide a reliable and accessible environment for developing and testing the sports clubs management system.

```
C:\Users\Tyler\Documents\unisport\index.php - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Folder as Workspace
index.php
1 <?php
2 // Simple PHP check to confirm server is running
3 $date = date("d M Y");
4 ?>
5
6 <!DOCTYPE html>
7 <html lang="en">
8 <head>
9 <meta charset="UTF-8">
10 <title>UniSport - Sports Clubs Platform</title>
11 <style>
12 body{
13     font-family: Arial, sans-serif;
14     margin:0;
15     background:#f5f7fb;
16 }
17
18 header{
19     background:#1f3a5f;
20     color:white;
21     padding:20px;
22     text-align:center;
23 }
24
25 nav{
26     background:#ffffff;
27     padding:10px;
28     text-align:center;
29     box-shadow:0 2px 4px rgba(0,0,0,0.1);
30 }
31
32 nav a{
33     margin:0 15px;
34     text-decoration:none;
35     color:#1f3a5f;
36     font-weight:bold;
37 }
38
39 .container{
40     padding:30px;
41     max-width:1000px;
42     margin:auto;
43 }
44
45 .card{
46     background:white;
47     padding:20px;
48     border-radius:8px;
49     margin-bottom:20px;
50     box-shadow:0 2px 5px rgba(0,0,0,0.1);
51 }
```

References

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